Corps of Engineers AFEP Fish Facility Design Review Work Group
Portland District
March 1, 2000, Summit Conference Room, 9:00a.m.

ACTION ITEMS FROM THE December 7, 1999 MEETING

DISCUSSION TOPICS

1. Adult Pit Program: Ebner/Ebberts
2. Turbine Survival Program Update: Bird/Peters/Schwartz

UPDATES:

System Studies:
1. Gas Fast Track: Emmert/Peters
2. Gas abatement program: Emmert/Peters
3. Turbine working group update: Rod Wittinger
4. Adult Lamprey: Langeslay

Construction:
1. B2 outfall and DSM: Chun/Ebberts
2. B1 turbine rehab: Mettler/Schwartz

Bonneville:
1. Bonneville Surface Collection: Etzel
    - PSC 2000 testing: Ebberts
    - !st Powerhouse Outyear prototypes alternatives study
    - 2nd Powerhouse High Flow outfall site selection
    - Hi-flow outfall guidelines research
    - CFD Model development
2. Bonneville Adult Pit: Ebberts
3. Adult Fallback study: Langeslay
4. Bonneville 1 FGE: Lee/Schwartz
5. Bonneville 1 JBS Improvements and trash handling: Dewey/Schwartz
6. Bonneville 2 AWS Backup: Maurseth/Schwartz
7. B2 Debris Study: Bird/Schwartz
8. B1 Decision Process: Clarke

John Day:
1. JDA Spill End Bay Deflectors: Hanson
2. John Day Configuration: Jerry Christensen/Langeslay
3. John Day smolt monitoring facility follow-on #3: Joe El-Khal
4. JDA Spill Test 2000: Stanger/Peters
5. JDA Surface Collection and spillway weir: Hanson
6. John Day ESBS: Stanger/Hanson/Langeslay

The Dalles:
1. TDA Surface Collection (Blocked trash rack): Tolonen/Mettler/
2. TDA Adult Ladder Modifications: Tolonen/Russel
3. The Dalles Combined System: (outfall relocation) Sedey/Bird
4. TDA Survival Test: Peters
5. TDA rehab: Tolonen/Schwartz

CENWP-EC-E (1146)

MEMORANDUM FOR THE RECORD

December 31 March 2000

SUBJECT: Minutes from the Corps of Engineers Anadromous Fish Evaluation Program, Fish Facility Design Review Work Group (FFDRWG) Meeting, held on March 1 2000. **Note: FFDRWG meeting minutes can also be found by accessing the Environmental Resource Branch Web Page at** http://www.nwp.usace.army.mil/pm/e/ENFISH.htm **.**

The meeting was attended by the following individuals:

Rock Peters	COE
Doug Clarke	COE
Mike Langeslay	COE
Steve Rainey	NMFS
Blaine Ebberts	COE
Tom Lorz	CRITFC
Gary Fredricks	NMFS
Patty Smith	BPA
Chuck Tracy	ODFW
Dennis Rondorf	USGS-BRD
Dennis Schwartz	COE
Randy Lee	COE
Bruce Monk	NMFS
Bill Hevlin	NMFS
Laurie Ebner	COE
Matt Hanson	COE
Bob Buchholz	COE
John George	WES
John Kranda	COE
Norm Tolonen	COE
Jeff Sedey	COE
Rod Wittinger	COE
Tom Carlson	Battelle
John Plump	INCA Engineers

ACTION ITEMS FROM THE LAST MEETING:

1. Action items from the last meeting were not discussed.

DISCUSSION TOPICS:

1. Adult PIT Program – (Laurie Ebner provided a handout). We will evaluate prototype detectors in 26" orifices this year. This will be done in the adult trapping facility exit ladder at Bonneville Dam. The existing orifices are 18", so test orifices will need to be cut larger. Also, overflow weirs will need to be blocked to accommodate the larger orifices. We plan on observing ladder hydraulics on March 24, and if conditions are not acceptable, we will put 18" inserts back into orifices that were enlarged to 26". We are investigating standardizing the orifice chamfers for all ladders to reduce the number of insert styles we need to make. Steve Rainey said that each ladder should be viewed as a separate entity: chamfers can have a dramatic effect on hydraulics. We are also looking at the feasibility of modifying overflow weirs to accommodate flat plate antennas. This is being tested on a 1:4 hydraulic model. There is an agency trip planned for March 18-19 to look at these configurations. Adult PIT-tag detection could be installed in all of Bonneville's

ladders by 2002 under the current schedule. We still need to prioritize the remaining projects in terms of where we implement after Bonneville.

2. Turbine Survival Program – Dennis Schwartz presented results of this years survival tests at Bonneville Dam First Powerhouse (Unit 5 vs 6 MGR). Preliminary findings suggest that MGR's had higher survival rates than the existing unit at the tip region through all 4 power levels. Also, injury rates were lower for the MGR with an accumulated 1.5% injury rate through all passage routes and power levels. Interesting finding was that 2.5% of the fish released in both units were found in the tail log slot which is an area of pretty high turbulence. Few of the fish found in the tail log slot were release near the hub, while most of the fish found in the tail log slot originated from releases from the tip and mid-blade.

   Upcoming actions for this program include an adult fish turbine passage workshop (early June). This will be similar the 1995 workshop on juvenile fish passage through turbines. We are still working on a progress report with a draft report out in April. There is a 13 March WES trip planned to synthesize McNary and Bonneville test results. We will hold a special FFDRWG in April to discuss all scoping aspects of the turbine survival program.

UPDATES:

System Studies

1. Gas Fast Track – The 1:55 general model for Bonneville has been completed, and we are currently looking at the existing deflectors. We have a design trip to WES scheduled for 17 April and will talk with the region about scheduling an agency trip. Model simulation runs have been sent out to the region for review. We would like comments back by the end of May. At John Day Dam, we did a complete near-field test. It will be a couple of months before we see all of the information generated by that test. **Action: Peters will set up meeting to brief FFDRWG on John Day near-field results.**

2. Adult Lamprey - There have been a number of changes to proposals sent out this summer. These changes were based on recent analysis of 1999 radio telemetry work, which identified entrances, entrance pools, and count stations as primary obstacles to adult lamprey migrants. For the radio telemetry evaluation we have added antennas around the count stations, and are working on plans to evaluate night counting using red-filtered lights versus standard lighting. We will test lowered entrance head at the spillway entrances. NMFS is analyzing previous years' data to see if the trends observed in 1999 are consistent. We are also looking at past data to discern whether passage rates and success changed when diffusion flow was on versus off. For tests in the experimental fishway we will evaluate adult lamprey response to floor diffusers with and without flow, light versus no lights (and red-filtered lights if fish numbers and time allow), picket leads, and 1' versus 0.5' head through simulated vertical slot entrances.

   Action: Mike L will provide SRWG members with the revised proposal.

3. Adult Salmon and Steelhead Studies – We are having a problem getting our adult steelhead handling (Section 10) permit from NMFS. NMFS is telling us they need to write a biological opinion on the research action because there are no take provisions in place for the activity. NMFS asked if we could allow steelhead tagging if they sent us a signed letter stating they intend to issue the permit.

   Action: We will consult our office of counsel to see if they will accept this alternative. Mike L. passed out a reporting schedule for previous adult telemetry field studies (attached). If our legal staff agrees, NMFS will look into writing the letter.

Construction

1. Bonneville Powerhouse 2 Outfall – There was a recent walk-through inspection of the system. Inspectors found no major fisheries issues. Sampling is planned to start 6 March. The primary dewatering facility screen cleaner operated well. It is programmable and can clean the whole screen or selected portions. We may want agency input on the operation of this cleaner. The water cannon is operational and ready for the upcoming hatchery releases. The end of the pipe has not yet been fixed because the pipe is underwater. When tailwater drops, we will make the repairs. NMFS would like to inspect the facility on 24 March, the same time they will be looking at the adult lab exit ladder for the adult PIT program. B2 DSM improvements are ongoing. We are looking at modifying the add-in water screen on the upstream end of the collection channel. We are also investigating how to improve orifice flow.

2. Bonneville Dam Powerhouse 1 Rehab – Unit 4 is in its 100-day operation test. Unit 10 rewind may be done mid April. Then 2 weeks of testing follow. Normal operation should start 1 May. Unit 3 rehab starts at the end of July.

Bonneville

1. Bonneville Surface Collection

   • Bonneville 1 Prototype Surface Collector (PSC) – (Handout enclosed) We should have all of the PSC modules in and operational by the end of this week. Testing begins mid April. We currently scoping Phase II deep slot development and reviewing a first draft in-house. Our goal is to lay out what our options are now so we have the necessary information to feed into the decision process. The final product for Phase II deep slot development will be a letter report.

   • Computational Fluid Dynamic Model Development – We received preliminary model results in December and expect a refined PSC model do be available in July. We had requested a forebay elevation 'hard constraint' to facilitate the CFD modeling element of this year's 3D fish tracking study, but have revised this request to a 'soft constraint'. With the soft constraint, we will try to minimize forebay fluctuations when tagged fish are in the study area. Coordination with RCC is ongoing.

   • B1 Decision Process – By April we will have a draft outline to present the information that will aid the PSC/JBS decision in February 2001. We expect two FY00 deliverables for data integration: one is the FGE information, the other is the efficiency and effectiveness results from PSC studies. There will also be 3-D fish behavior information, but we are not sure that will be fully analyzed in time for the February decision. It is our view that the 3-D results are not critical to this decision, but rather are intended to refine the PSC design. It is the efficiency and effectiveness data that are important for deciding between surface versus mechanical byapass.

   • B2 Corner Collector – (Handout enclosed) The high flow outfall preliminary guidelines were sent out to the region in July. We have developed a research plan to address the uncertainties identified in the guidelines report. Currently, we are looking for a new site to conduct the high flow outfall field evaluation. We will get a draft plan out for review. This work is needed in order to provide a compelling case for exceeding NMFS' 25 fps outfall velocity criteria. The 30% outfall site selection report is due 3 March. The original goal of this report was to recommend a range of locations for B1 and B2 high flow outfall sites. The evaluation matrix will not be completed for the 30% report because we are still waiting for velocity information. The report will have, however, information of different types of outfalls. The 60% report is due out 2 May and the final is due in August. We will have a special FFDRWG on 20 March to go over the 30% report. There will be an agency trip to WES scheduled for May or June.

2. Bonneville Adult Fallback - We held a special FFDRWG January 6 to go over Battelle's 2-D model results and discuss the program direction. At that meeting, all agreed that additional

biological and hydraulic evaluations were necessary prior to developing an alternatives report. We identified additional study needs, and have programmed the following into this year's effort:

- Monitor migration routes in the spillway forebay in more detail.
- Determine spillway route (gate) for each fallback.
- Determine depth adults travel at between 'hits' on stationary receivers.
- Monitor migration routes of fish released on the OR shore.
- Simulate a wider range of project operations with the 2-D model.
- Develop a 3-dimentional CFD model.

NMFS would like details on the proposed Oregon shore release site, hydraulic conditions, and release methods.

Action: Mike L. will provide SRWG with these details.

3. Bonneville 1 FGE – We will be measuring the prototype ESBS's FGE with both direct capture (fyke net) and hydroacoustically at Unit 8 for both spring and summer migrants. In addition, we are evaluating near-field behavior just upstream of the trashracks using a traversing spilt beam system. The schedule on delivery of the traversing split beam has slipped one week. Following the FGE evaluation, we will conduct a turbine index test in a unit with an ESBS (either Unit 4 or Unit 6).

   Action: Dennis S. will work the index test schedule out with NMFS.

4. B1 JBS – The 90% JBS and shear boom plans and specifications are due the last part of April.
5. Bonneville 2 AWS Backup – We expect CH2M Hill to provide us with their review of the 60% alternatives report on 23 April.
6. Bonneville 2 Debris Study – We plan on collecting baseline data in front of the fish units to see if debris has accumulated since that area was dredged. Walla Walla District is putting together a recon study that looks at debris accumulation, maintenance cost, etc. for existing conditions and proposed alternatives.

John Day:

1. JDA Configuration Paper – A draft of this paper was sent out to FFDRWG in February. We requested comments by this FFDRWG. There was some discussion on the purpose of the paper and its intended use. Steve R. said that because the paper was two months late, and behind work already completed by the Biological Effectiveness Work Group, it was of little utility to NMFS. Bill H. disagreed, saying he envisioned the paper feeding into the Lower Columbia River Feasibility Study. Steve also pointed out that the passage goals used in the paper (95% survival, 80% FPE should be removed because, since issue of the 1998 Supplemental BiOp, there have been no specific passage goals identified by NMFS).
2. JDA Surface Collection – Notice to Proceed for the design document work is expected in early April. Agencies will receive the 30, 60, and 90% drafts. There will be an agency site visit to John Day to evaluate which alternatives to model.
3. JDA ESBS – The 1:12 WES model broke, however, we are still on schedule with our modeling program. The VBS perforated plate design will be done in May. We will take ESBS field velocity measurements late this month, then repeat these measurements at LGR and in the WES model latter in the year. We expect to complete an orifice design memo by July, with a draft coming out earlier. We will hold an agency meeting immediately following the first draft.
4. JDA North Shore Ladder – NMFS added this topic to the agenda. They had requested at the last FFDRWG that we investigate the north shore ladder AWS system. The pointed out that, despite attempts at fixing this problem, we still can only get 3 of the 6 pumps to run. What is needed is a

comprehensive investigation of what would be required to meet FPP criteria (e.g. 8' entrance depth, 1-2' head). We had not yet acted on this request.

Action: Mike L will initiate this work.

The Dalles:

1. TDA Surface Collection – We are modeling the effect of closing gaps in trashrack blocks. The question is will we have the same volume of water passing through the narrower gaps (at higher velocities). As soon as we have field velocity data, we will send it out to the region. We are expecting a report from WES by the end of July on the "J" configuration. HDC is designing a system to hoist extensions and trashrack blocks in one piece. Our goal is to have capability to move all blocks within 24 hours. In FY00 we will **not** deploy the existing blocks. This will make FPE results more comparable to FY99 data.

2. TDA Adult Ladder Dewatering Improvements – Omaha District is doing the plans and specs for this project. The letter report cost for the improvements was estimated at $8.7 million. Omaha has some ideas to reduce this cost and will conduct a value engineering study. It will take a year to complete plans and specs. Construction could start in the 2001/2002 in-water work period.

3. TDA Combined System – The Auxiliary Water Supply report has just come out. We will send it to FFDRWG. The cost for AWS alternatives is about the same, so we will select the alternative based on biological and O&M considerations. We will go back to Northwest Hydraulics to evaluate outfall elevations and cantelever verses trimmed rock options. Then we will take another look at operation scenarios at WES. The agencies would like to accompany us on this trip. We are currently scoping plans and specs. We are scheduled to start plans and specs in the May – June timeframe with notice to proceed by 1 October and BCOE by May 2001. Gary F. said that NMFS will not approve this system until high flow outfall work confirms the outfall is safe for fish, and the tailrace egress is satisfactory at all project operations (based on WES modeling). If this cannot be done in time, we will need to slip the schedule.

   Actions: Jeff S. will mail out AWS report; We will include the agencies on the WES modeling trip.

4. TDA Turbine Rehab – Unit 4 went down 1 March for rehab and we will begin rehab work on Unit 6 in 6 months. The schedule is to rehab two units per year between 1 March and 1 December. We will be doing the generator rewinds for the next couple of years, then turbine blade replacement will follow. The new blades should increase efficiency from 3.5 - 4%.

5. TDA/JDA Survival Studies – We have gone as far with study development as we can through SRWG. The remaining issue is what can the system deliver in terms of operations. We will outline the technical details and send them to our Division office to work out this remaining issue.